

ABSTRACT

A micro-electromechanical fluid ejection device includes a substrate. A nozzle chamber wall and a roof wall are positioned on the substrate to define a nozzle chamber and an ink ejection port in the roof wall. An elongate actuator arm has a fixed end portion is fast with the substrate and a free end portion that is spaced from the substrate. The elongate actuator arm incorporates a heating circuit that is connectable to a power supply to heat the actuator arm. The heating circuit is positioned to generate differential thermal expansion and contraction when heated and subsequently cooled to cause reciprocal displacement of the free end portion of the actuator arm.

10 A fluid ejection member is fast with the free end of the elongate actuator arm to be positioned in the nozzle chamber such that said displacement of the free end portion of the actuator arm results in the ejection of fluid from the ink ejection port. Control logic circuitry is positioned on the substrate along an elongate region defined on the substrate and interposed between the actuator arm and the substrate. The control logic circuitry is connected to the heating circuit to enable and

15 disable the power supply according to a control signal received by the control logic circuitry.